JUSTIFICATION FOR OTHER THAN FULL AND OPEN COMPETITION

Contract No.	R06PC30062	Contract Specialist:	Rita Horkan
Contract Title:	Pressure Relief Valve Overhauls, Hoover Dam, Boulder City, Nevada		

Introduction: As required by Federal Acquisition Regulation 6.303-2, this Justification for Other Than Full and Open Competition (JOTFOC) is prepared to document the facts and rationale justifying the authority to negotiate with a sole offeror for the above requirement in accordance with FAR 6.302-1, 41 U.S.C. 253(c)(1). This JOTFOC follows the format and contains all the information required under FAR 6.303-2.

1. **Identification of Agency, Contracting Activity and Document.**

Bureau of Reclamation, Lower Colorado Regional Office, Justification for other than full and open competition

2. **Nature and/or Description of Action Being Approved.**

This J&A is for the negotiation and award of a sole source modification through other than full and open competition. The equipment being procured consists of additional quantities of specially designed programmable logic controllers and hydraulic control manifolds. Modification No. 0054 will be negotiated with Precision Machine & Supply, Inc., 3218 East Main Street, Lewiston ID 83501. The original contract value was $6,333,402 and the period of performance was August 30, 2006 (contract award) through August 31, 2011 (through exercise of option 4). The independent Government cost estimate is $1,000,000 for the additional equipment.

Background

Various contractors designed and manufactured pressure-regulating valves (PRVs) as part of the seventeen generators at Hoover Dam, located near Boulder City, Nevada. The various contractors all installed their own designs at Hoover Dam. For example, Pelton designed and manufactured the PRV on unit A2, while Allis Chalmers manufactured the PRV on unit A3. The A2 Pelton design operates by raising a piston, while the A3 Allis Chalmers design lowers a piston. In other words, the PRVs operate in opposite directions. There are other examples of non-standard PRV designs throughout the power plant.

Under Contract No. 07CP308064, programmable logic controllers were installed on the generating units. These new programmable logic controllers made it possible to control a modern hydraulic system on the PRVs.

Under commercial Contract No. R06PC30062, the contractor (Precision Machine & Supply Inc.) is required to disassemble, remove, rebuild, and re-install PRVs (this entire process is called an overhaul) for various units at Hoover Dam. Hoover Dam identifies the components of the PRVs as either above or below the water. The goal of this contract was to return the 70-year-old PRVs to "like-new" condition, both above and below the water. The principle components of this work included:

(1) Repair or replace damaged surfaces;

(2) Repair or replace check and flow control valves;

(3) Surface coating; and

(4) Test operations

In order to improve safety and reliability of the PRV equipment, Hoover Dam began also modernizing PRVs in 2007. The modernization required the following:

(1) Changing the control of the PRV from mechanical to digital;

(2) Replacing the components operated by lake water and the mechanical linkages to the turbine with oil-hydraulic systems and digital hydraulic drivers; and

(3) Linking computer intelligence electronically from the UCM PLCs to the pressure regulating valves' controls to operate the modernized PRV.

The work below the water was unchanged, but the contractor added the following work:

(1) Design, build, and install a new headcover, oil-hydraulic cylinder, and stop tower;

(2) Design, build, and install a PLC control system to operate the PRV that communicates with the UCM control system;

(3) Design, manufacture, and install a control manifold to properly distribute the oil for moving the cylinder; and

(4) Design, manufacture, and install a hydraulic oil pressure system and piping (HPU). Components included the following: 7.5HP motor, oil pump, oil reservoir, accumulator to supply stored energy to the oil system, hydraulic pump, pressure switch, solenoid valves, piping, motor starter, and oil spill containment.

The modernized PRV design removed the mechanical components above the old headcover. The design did not require the components' restoration and re-installation since the hydraulic cylinder and stop tower replaced these parts on the new digitally linked PRV.

Under the contract, Precision Machine & Supply Inc. (Precision Machine) developed the overall design for the PRV modernization including the subassemblies (hydraulic control manifold, programmable logic controller, headcover, cylinders, etc.) and changes internal to the PRV housing and valve in order to meet the Government's specified functional design criteria.

Current Requirement

To date, Hoover Dam has overhauled and modernized five PRVs (N3, N7, N2, N4, and A6). The modernized PRVs are standardized and the components and operation are identical. Hoover Dam overhauled, but did not modernize, three PRVs (A2, A4, and A7) prior to 2007. Hoover Dam is planning to overhaul and modernize the remaining nine PRVs (A1, A3, A5, A8, A9, N1, N5, N6, and N8) beginning in October 2012. Hoover Dam may also decide to modernize the three PRVs that were overhauled prior to 2007. Hoover Dam is planning to begin working on a new procurement in October 2010 to procure services to modernize the remaining nine PRV units. A new PRV contract must be awarded for the overhaul to begin in October 2012. Although the re-designed mechanical components are proprietary to Precision Machine, the Government can competitively bid the future PRV overhaul and modernization under the new procurement because Precision Machine designed the component parts by using conceptual drawings that are the property of Hoover Dam. Therefore, the hydraulic oil pressure system and piping components (i.e., 7.5 HP motor, oil pump, oil reservoir, accumulator, hydraulic pump, pressure switch, solenoid valves, piping, motor starter, and oil spill

containment) can be procured under the new contract. However, Precision Machine and its subcontractors (American Governor and Controlled Motion Solutions (Comoso)) designed the critical electronic and hydraulic controls for the modernized PRVs. Hoover Dam cannot procure these items under a new PRV contract because the design of these items is proprietary. Furthermore, Precision Machine, Comoso, and American Governor have exclusivity agreements to the design and systems.

3. **Description of the Supplies or Services Required to Meet Agency's Need (including estimated value).**

The Government requires additional programmable logic controllers and hydraulic control manifolds that are identical in design, manufacture, assembly, and function to those already provided for the modernized PRVs. The programmable logic controllers and hydraulic control manifold are the critical electronic and hydraulic controls which were designed specifically to modernize the PRVs and are essential for a fully functioning system. Hoover Dam requires ten additional programmable logic controllers and ten additional hydraulic manifolds (inclusive of one additional spare part) to be purchased and delivered through a sole source modification to Contract No. R06PC30062 so that the component parts can be utilized during the October 2012 overhaul. Precision Machine has developed the proprietary design to make a fully functioning system that will control the PRV motion and protect the penstock in case of emergency shutdown. The modernized PRVs were designed to open and close under controlled parameters. The individual commercial components/parts for the programmable logic controllers and hydraulic control manifolds could be purchased separately but would serve no purpose without the knowledge required to assemble the components to make a functioning system; the design and systems are proprietary. The modernized PRVs operate with a digitally controlled hydraulic system. A programmable logic controller controls the hydraulic fluid's movement. The programmable logic controller monitors the status of the generator through a signal received from the Unit Control Modernization (UCM). A hydraulic manifold (which the programmable logic controller controls) routes the hydraulic fluid. Precision Machine was required, in part, to perform the following work: (1) design, build, and install a programmable logic controller system to operate the PRV that communicates with the Unit Control Modernization (UCM) control system and (2) design, manufacture, and install a control manifold to properly distribute the oil for moving the cylinder. In response to Precision Machine's requirements, Comoso and American Governor provided designs and schematics. Precision Machine required that Comoso's hydraulic manifold correctly control the flow of high pressure hydraulic oil into and out of the hydraulic cylinder in response to commands received from the American Governor controller.

As stated earlier, one of the goals of the PRV modernization work was to improve the safety and reliability of the PRV equipment in order to prevent damage to the penstock. Hoover Dam can achieve this goal by using standardized equipment. Hoover Dam's PRV modernization requires the standardization of digital controls and hydraulic manifolds. Hoover Dam can achieve this goal by procuring additional hydraulic control manifolds and programmable logic controllers that are identical in design, manufacture, assembly, and function to those already provided. The five PRVs that Precision Machine modernized all have digital control systems manufactured by American Governor and hydraulic manifolds manufactured by Comoso.

The Government benefits from standardization include:

(1) Improved knowledge of equipment by personnel in maintenance, operations, and engineering. Using multiple manufacturers for manifolds and programmable logic controllers adds extensive training investments in order to gain knowledge and understanding of how to safely operate, maintain, and troubleshoot the variety of equipment. The Government avoids the cost from installations of manifolds and programmable logic controllers designed by different suppliers when multiple units use a single piece of equipment.

(2) Reduced need for spare parts in inventory.

(3) Decreased possibility of human error that results from avoiding the challenge of keeping knowledgeable about multiple PRV designs during maintenance and testing.

(4) Less chance of incompatibility when Hoover Dam networks the programmable logic controllers together in the future.

The estimated value for this modification action is $1,000,000 for the ten programmable logic controllers and ten hydraulic control manifolds.

4. **Statutory Authority Permitting Other Than Full and Open Competition.**

This J&A is based upon the authority of 41 U.S.C. 253(c)(1), as implemented by Federal Acquisition Regulation 6.302.1, Only One Responsible Source and No Other Supplies or Services Will Satisfy Agency Requirement.

5. **Proposed Contractor's Unique Qualifications/Nature of Acquisition Requires Use of Cited Authority.**

This procurement action will be negotiated with Precision Machine & Supply, Inc., 3218 East Main Street, Lewiston ID 83501. Under Contract No. R06PC30062, the modernized PRVs were converted from a mechanical to computer controlled hydraulic oil system to operate the PRV at the desired rate of opening and closure to meet the Government's design criteria. Precision Machine developed the entire system. The contractor developed the design, manufactured new replacement components, refurbished embedded existing components and made necessary changes to existing components for compatibility to function with the modernized PRV. Precision developed the design for the modernized PRV and worked in conjunction with American Governor and Comoso to provide fully functioning units. Precision Machine, Comoso, and American Governor have exclusivity agreements to the design and systems.

In order to both modernize and standardize the remaining PRVs, ten additional programmable logic controllers must be obtained. The components must be identical in design, manufacture, assembly, and function to those already provided for the modernized PRVs. The technical data to assemble and configure the components into a fully functioning system is not available since Precision Machine developed the overall design to modernize the PRVs.

Typically one PRV unit has been modernized and overhauled each year. Starting with the 2012 contract, the number of modernized and overhauled units will increase to two per year. It is more economical to procure the additional control systems and manifolds under one contract rather than possibly procure, negotiate, and award ten separate purchase orders/contracts to obtain the required programmable logic controllers and hydraulic manifolds required to modernize the remaining PRVs and to ensure that they are all standardized. Additionally, it is economical to procure these two critical components under a contract modification to Precision Machine's current contract rather than incur additional procurement costs to solicit, negotiate, and award a separate sole source contract. Additional procurement lead time would also be required. There are additional risks related to the required hardware and software becoming obsolete which could then require a new design and result in non-standardized PRVs.

Precision Machine designed the modernized PRV system. Precision Machine has declared on their drawings that this design is proprietary. Comoso and American Governor provided designs and schematics in response to Precision's requirements. Precision Machine required that the Comoso

hydraulic manifold correctly control the flow of high pressure hydraulic oil into and out of the hydraulic cylinder in response to commands received from the American Governor programmable logic controller. Comoso has also declared their design of the hydraulic systems proprietary, as it was specifically designed to meet the unique requirements for Hoover Dam's modernized PRV. One particular subassembly of the new hydraulic manifold was built by Precision Machine using parts provided by Comoso. American Governor designed the digital control systems by utilizing non-proprietary, off-the-shelf hardware and software. American Governor adapted Project-specific software as needed to control the specific style of PRV mechanism in use for the modernized PRVs. There is a licensing agreement between Precision Machine, American Governor, and Comoso. In order to obtain the PLC systems and manifolds to realize the benefits of standardization mentioned earlier, the Government will need to purchase the programmable logic controllers and manifolds through Precision Machine. Due to safety and reliability requiring standardized PRV equipment, the Government will achieve best quality by modifying the existing contract to purchase the equipment. A significant duplication of effort would be required for different companies to establish their own designs that matched the existing, modernized, PRV design. The time for the new contractor to reverse-engineer the existing design, and then deal with the probable legal issues, would create an unacceptable delay to the installation of the equipment in 2012. The lead time for Comoso to supply the hydraulic control manifolds is approximately 15 weeks after receipt of an order. The lead time for American Governor to supply the programmable logic controllers is approximately 6 months from receipt of an order.

It is likely that award to any other source would result in unacceptable delays and substantial duplication of cost to the Government, which would not be recovered through competition. Another source would have to reverse engineer Precision Machine's designed hydraulic manifold controls and programmable logic controllers.

6. **Efforts Made to Ensure That Offers are Solicited From as Many Potential Sources as Possible.**

Pursuant to FAR 5.101(a), the proposed modification action was posted on the Federal Business Opportunities (FedBizOpps) website.

7. **Determination of Fair and Reasonable Price.**

The contracting officer will ensure that the items described herein are negotiated at a fair and reasonable price to the Government. A detailed price analysis will be performed. Information other than cost or pricing data may be obtained and cost analysis performed, if appropriate

8. **Market Survey.**

In accordance with FAR 6.302-1(d)(2), this requirement has been synopsized. Industry was advised of the pending sole source procurement and inquiries were solicited from interested parties. No sources expressed interest in this sole source procurement. As previously stated, efforts to obtain competition for this action are not feasible since other sources would have to reverse engineer Precision Machine's designed hydraulic manifold controls and programmable logic controllers.

9. **Additional Supporting Facts for Use of Other Than Full and Open Competition.**

FAR 6.302-1(a)(2)(iii)(A) provides that highly specialized services may be deemed available only from the original source when it is likely that award to any other source would result in "substantial duplication of cost to the Government that is not expected to be recovered through competition." The

Government has already paid for the design for the modernized PRVs. As stated previously, Hoover Dam's goal is to standardize all PRVs for safety and reliability. The same design can be used to modernize the remaining PRVs and therefore will not result in any additional design costs.

The costs to purchase the additional programmable logic controllers and hydraulic control manifolds will be less due to economies of scale by buying larger quantities.

Because Precision Machine developed the design to modernize the PRVs, technical data is not available to obtain competition for this requirement. The hydraulic control manifolds and programmable logic controllers were designed specifically to modernize five PRVs. Any competing contractor would not be able to provide the required items without accomplishing a significant and unnecessary amount of work to reverse engineer the electronic and hydraulic controls since the items must be standardized and compatible with existing modernized PRVs. Award to another source would cost the Government time with regards to a possible learning curve and time to be able to satisfy Hoover Dam's requirements to modernize and standardize PRVs.

If the additional programmable logic controllers and hydraulic control manifolds are not procured timely, there is significant risk that hardware and software could become obsolete if manufacturers change or discontinue making particular components. Different software and hardware issues could create compatibility issues and possibly require a different design and result in non-standardized modernized PRVs. All hardware components will remain identical. This will eliminate the possibility of having different hardware versions in future programmable logic controllers as hardware manufactures update their product lines. The programmable logic controller software for all of the units will remain identical. If future programmable logic controllers were supplied with different hardware versions, then different software may also be required to operate each programmable logic controller. Buying all of the programmable logic controllers now will eliminate the possibility of multiple software versions.

American Governor developed the software utilized in the programmable logic controllers. Hoover Dam has received the license to use the software. A license would not be required for the additional quantities to be acquired under this procurement action.

10. **Listing of Sources Expressing Interest in Acquisition.**

No sources expressed interest in the acquisition as a result of the special notice published at FedBizOpps.gov.

11. **Action Taken to Remove and Overcome Barriers to Competition.**

As stated previously, the Government contemplates awarding a new PRV contract which will require modernization of remaining PRVs. The re-designed mechanical components can be competitively bid by using the conceptual drawings that are the property of Hoover Dam. The hydraulic oil pressure system and piping components can be procured under the new contract.

12. **Approvals**. The supporting data, which is the responsibility of the Bureau of Reclamation technical personnel and forms basis for this justification, have been certified as complete and accurate by means of the below signature on this document. As required by FAR 6.303-2(a)(12) and 6.304(a)(1), the contracting officer certifies that the justification is accurate and complete to the best of her knowledge and belief and (b) the signatures demonstrate the certifications and approvals necessary for this Justification for Other Than Full and Open Competition.

Certified Complete and Accurate by:

Certification by Requirements\Technical Personnel:

Signature — Mechanical Engineer — 6/3/2010 Date

Prepared by:

Signature — Contract Specialist — 6/3/2010 Date

Concurred by:

Signature — Contracting Officer — 6/7/2010 Date

Approved by:

Signature — Chief of the Contracting Office/Asst. Competition Advocate — 6/9/10 Date

>$550,000 – Competition Advocate:

Signature — Manager, Acquisition and Assistance Division, Denver, CO — 7/1/10 Date